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(54) **HIGHLY PURIFIED TITANIUM MATERIAL, METHOD FOR PREPARATION OF IT AND SPUTTERING TARGET USING IT**

(75) Inventors: **Takashi Ishigami**; **Mituo Kawai**; **Noriaki Yagi**, all of Yokohama (JP)

(73) Assignee: **Kabushiki Kaisha Toshiba**, Kawasaki (JP)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

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(58) **Field of Search** 257/763, 751, 257/750, 758, 764, 770, 709

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Primary Examiner—Jhihan B Clark
(74) *Attorney, Agent, or Firm*—Foley & Lardner

(57) **ABSTRACT**

The crude Ti particles prepared by molten salt electrolysis or Iodide method are classified into each particle diameter according to contents of impurities, and the crude Ti particles having a desired particle diameter are selected from the crude Ti particles classified depending on each particle diameter. Otherwise, the crude Ti particles are acid-treated. Then they are electron-beam-melted. Through the above production process, there is prepared a highly purified Ti material having an oxygen content of not more than 350 ppm, Fe, Ni and Cr contents of not more than 15 ppm each, Na and K contents of not more than 0.5 ppm each, a reduction of area as a material characteristic of not less than 70%, and a thermal conductivity of not less than 16 W/m K. In short, the highly purified Ti material satisfying high purity, good processability and good thermal conductivity can be obtained. A film having more uniform thickness of film and inside structure can be obtained from a sputtering target prepared using the above highly purified Ti material.

14 Claims, 3 Drawing Sheets